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ABSTRACT

A study examined instructional environment and the relationship between communication apprehension and academic achievement for freshman students in general and for those enrolled in large, introductory level college courses in particular. Data were collected from responses on a short demographic questionnaire and J. McCroskey's PRCA-24 (McCroskey, 1982) as well as by accessing student records from 1077 undergraduate students enrolled in an 18-week interpersonal communication course at a midwestern university. Results revealed that the relationship between communication apprehension (CA) and academic achievement (AA) were statistically significant and negative when American College Testing Program scores and course grades were used to operationalize AA. Results also revealed that when AA was operationalized using cumulative GPA (grade point average), high CA students out-performed their low and medium CA counterparts. This was particularly true in the communication-restricted system involving instruction primarily employing the mass-lecture, lecture, objective testing, and written methods. Findings suggest that high CA students can compete effectively in communication-restricted systems and, in most cases, better than those students who do not experience communication apprehension. Findings also suggest that the concern for the well-being of the high CA student in a communication-restricted basic course in interpersonal communication appears unfounded. (Three tables of data are included; 22 references are attached.) (KEH)

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Communication Apprehension and Academic Achievement in a Basic Course in Interpersonal Communication

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Communication Apprehension and Academic Achievement in a Basic Course in Interpersonal Communication

The relationship between communication apprehension (CA) and academic achievement (AA) has been a central focus of a number of research projects in the past two decades. Compared to students low in communication apprehension (LCA's), high communication apprehensives (HCA's) have lower overall grade point averages, develop more negative attitudes towards school at all levels, receive lower final course grades, score lower on standardized achievement tests, and are perceived less positively by their teachers and classmates (McCroskey, 1977; Hurt & Preiss, 1978; Davis & Scott, 1978; Powers & Smythe, 1980; Comadena & Comadena, 1984; Comadena & Prusank, 1988; Richmond & McCroskey, 1989; Bourhis & Berquist, 1989). Taken collectively, these studies invite the conclusion that at all educational levels, in a wide variety of contexts, the student who experiences high communication apprehension competes at a distinct academic disadvantage. The conclusion reached by McCroskey (1977) is that "high communication apprehensives learn less than low communication apprehensives throughout their elementary and secondary education" (p. 29). This conclusion is particularly alarming when one considers that between 15 and 20 percent of American college students suffer from the debilitating effects of communication apprehension (McCroskey, 1977).

Of particular interest to administrators and teachers of the basic course in interpersonal communication are studies that suggest the nature of the instructional environment is a significant mediating variable that determines whether or not CA effects academic achievement (McCroskey & Andersen, 1976; Scott, Wheeless, Yates & Randolph, 1977; Scott et al., 1977; Garrison et al., 1977; Powers & Smythe, 1980). In fact, depending upon the instructional environment, HCA students out perform their low and moderate counterparts (Scott, Wheeless, Yates & Randolph, 1977). These studies suggest that in environments in which communication is restricted (ie., the mass-lecture system), the HCA student is not disadvantaged. In the mass-lecture system, communication between teacher and student is restricted, communication demands on the student are minimal, students can successfully remain annonymous, and the instructional strategies employed are preferred by the HCA student (Scott et al., 1977; Bourhis et al., 1989). This study examined the relationship between CA and academic achievement in general, and in a basic course in interpersonal communication with a mass lecture component.

HYPOTHESES

The present study examined the relationship between CA and academic achievement for freshman students in general, and those enrolled in a basic course in interpersonal communication in

particular. On the basis of previous research the following four hypotheses were tested:

H1: HCA students will score lower on the American College Testing Program (ACT) exam than LCA students.

H2: HCA students will attain a less favorable high school class ranking than LCA students.

H3: HCA students will attain lower cumulative grade point averages than LCA students.

H4: HCA students will attain higher final grades in a communication restricted basic course in interpersonal communication than LCA students.

In addition to these four hypotheses the following research question was posed:

RQ1: Which of the following is the best predictor of a student's final course grade in a basic course in interpersonal communication: CA, ACT score, class rank, or cumulative GPA?

METHOD

Subjects

Data were collected from undergraduate students enrolled in an eighteen week course in interpersonal communication at a midwestern university in the Spring and Fall of 1989. The thirty-five sections surveyed yielded a sample size of one-thousand-and-seventy-seven subjects (*N* = 1077). The average age of respondents was 19 (*SD* = 1.73, range: 17-47) and there were slightly more female (*n* = 588, 55%) than male (*n* = 489, 45%) subjects in the sample. The majority of the subjects were freshman (*n* = 879, 82%) with undeclared (*n* = 514, 48%), business (*n* = 109, 10%), or accounting (*n* = 92, 9%) majors who had completed approximately 30 credit hours (*M* = 30.13, *SD* = 12.27).

Procedures

At the end of each semester, students were given an opportunity to earn "extra-credit" points by voluntarily participating in a research project. Subjects signed a consent form, completed a short demographic questionnaire and McCroskey's PRCA-24. Data regarding subject achievement were obtained by accessing student records. The primary statistical procedures used were Pearson correlation and univariate analysis of variance.

Measures

Communication Apprehension. The independent variable in this study was level of communication apprehension as measured by McCroskey's PRCA-24 (McCroskey, 1982). Using standard deviation splits on the PRCA-24 score (M = 66.26, SD = 14.91) subjects were classified as either low (n = 143, M = 40.49, SD = 9.58), moderate (n = 774, M = 66.40, SD = 7.79) or high (n = 160, M = 88.61, SD = 5.28). The alpha reliability for the PRCA-24 was .92.

Achievement. The dependent variable in this study was academic achievement. Academic achievement was operationalized using four measures: (1) cumulative grade point average (GPA) based upon a four-point scale; (2) scores on the American College Testing Program (ACT) exam including english, math, social science, and natural science subscores; (3) the student's academic rank in his/her high school graduating class, and (4) the subject's final grade in an introductory course in interpersonal communication.

RESULTS

Insert Table 1 about here

Table 1 presents descriptive statistics for CA and student achievement. Results for composite ACT scores and course grades were consistent with the hypotheses. The results for class rank

and cumulative GPA were not consistent with the proposed hypotheses. The composite ACT scores for HCA students were lower (M = 19.32, SD = 4.66) than for LCA (M = 20.85, SD = 3.15) and MCA (M = 19.44, SD = 3.82) students. The results for GPA, class rank, and course grade were higher for HCA students (GPA M = 2.82, SD = .77; rank M = 74.81, SD = 91.69; grade M = 2.55, SD = 1.30) than for LCA (GPA M = 2.62, SD = .62; rank M = 112.46, SD = 108.93; grade M = 2.17, SD = .93) or MCA students (GPA M = 2.70, SD = .71; rank M = 95.18, SD = 98.83; grade M = 2.33, SD = 1.03).

Insert Table 2 about here

Table 2 presents the results of the univariate ANOVAs. Significant ANOVAs were obtained for composite ACT scores (F = 8.42, df = 2, 1056, p < .001), social science subscores (F = 11.88, df = 2, 1056, p < .001), natural science subscores (F = 18.44, df = 2, 1056, p < .001), and english subscores (F = 3.75, df = 2, 1056, p < .05). A significant ANOVA was not found for the ACT mathematics subscores (F = 1.09, df = 2, 1056, p > .05). Significant ANOVAs were obtained for GPA (F = 3.53, df = 2, 1056, p < .05), course grade (F = 5.01, df = 2, 1056, p < .01), and class rank (F = 5.42, df = 2, 1056, p < .001).

Table 3 presents correlations among all of the variables. All of the measures of achievement were highly correlated with each other at the .001 level with the exception of the composite

Insert Table 3 about here

ACT score and social science subscore (r = .78, p < .01). Communication apprehension was correlated with rank (r = -.12, p < .001), ACT (r = -.07, p < .05), social science (r = -.14, p < .001), natural science (r = -.10, p < .01), GPA (r = .09, p < .01), and grade (r = .11, p < .001). The best predictor of a student's achievement in a basic course in interpersonal communication was cumulative GPA (r = .88, p < .001).

DISCUSSION

The results reported here offer partial support for two of the hypotheses tested. HCA students obtained lower ACT scores than LCA or MCA students (r = -.07, p = .05). Although statistically significant, the relationship is not strong. All of the HCA students scored lower than LCA students in english, natural science, math and social science. HCA students had lower math and social science scores, but higher english (M = 20.04, SD = 3.88) and natural science (M = 21.66, SD = 4.95) scores than MCA students (M = 19.46, SD= 3.66; M = 21.53; SD = 4.75). This result is consistent with previous research (McCroskey & Andersen, 1976). This result is surprising for two reasons. First, this study employed a substantial sample size of 1077 subjects which should have yielded a far stronger relationship

than obtained. Second, the subjects in this study all chose to take a course in interpersonal communication rather than a course in public speaking to satisfy a general education requirement. Given a choice, one would expect a greater percentage of HCA students to choose interpersonal over public speaking (McCroskey, 1977) which should insure a stronger negative relationship between CA and academic achievement.

No support was found for the predicted relationship between CA and high school class ranking. HCA students did not obtain a less favorable high school class ranking than LCA students. In fact, the results obtained were statistically significant in a direction opposite than that which was predicted (r = -.12, p = .001). HCA students obtained more favorable high school class rankings (M = 74.81, SD = 91.69) than either LCA students (M = 112.46, SD = 108.93) or MCA students (M = 95.18, SD = 98.83). This result is surprising because high school class rank is a function of cumulative GPA across four years. One possible explanation for the result is that this study did not control for class size. A class rank of fifty in a graduating class of seventy-five is substantially different than a class rank of fifty in a graduating class of five-hundred. A more accurate measure would be to calculate class rank as a percentage of class size which would control for size and yield a common metric. Data on class size was not available for these subjects.

No support was found for the predicted relationship between

CA and cumulative GPA. The first semester cumulative GPA for HCA students (M = 2.83, SD= .77) was higher than that obtained by LCA (M = 2.62, SD = .62) or MCA (M = 2.70, SD = .71) students. Again, the results obtained were statistically significant in a direction opposite that which was predicted (r = .09, p .01). The results are surprising but not inexplicable. First, the relationship between CA and GPA may require further refinement. McCroskey et al. (1989) found that the negative relationship between CA and GPA was relatively small during a student's first year, slightly larger in year two, and not statistically significant in years three and four. Since GPA in this study was the result of a student's performance in his/her first semester, it may not accurately reflect a student's performance for one full academic year. Second, HCA students may experience greater initial academic success because they avoid social and co-curricular activities that characterize a freshman's first semester. LCA and MCA students tend to be more socially oriented and may find that such activities initially affect their academic performance. Third, HCA students may experience initial academic success because they avoid courses that require extensive interaction or drop out of those courses that do (McCroskey, 1977; McCroskey et al. 1989). HCA students may be more skilled at choosing those courses which will maximize their ability to experience academic success despite their apprehension. Fourth, many courses available to freshman tend to be large, mass

lecture, introductory courses designed to satisfy general education requirements. The instructional strategies employed in such courses (mass lectures, guest lectures, lectures, films, objective tests, writing, and educational games) are the instructional strategies identified by HCA students as most effective in helping them to learn (Bourhis et al., 1989). In contrast, LCA students identify these strategies as least effective in helping them to learn (Bourhis et al., 1989). Freshman level introductory courses often rely upon instructional strategies that could be characterized as more passive than active which also maximizes the HCA student's probability for success (Bourhis et al., 1989). In the typical introductory level course LCA and MCA students may be at a greater disadvantage than their HCA counterparts.

Support was found for the predicted relationship between CA and final grades in an introductory course in interpersonal communication (r = .11, p = .001). HCA students obtained higher final grades (M = 2.55, SD = 1.30) than LCA (M = 2.17, SD =.93) and MCA (M = 2.33, SD = 1.03) students. In this study students were enrolled in a very large (N = 1500 students per semester) multi-section (N = 40) basic course in interpersonal communication. The course is divided into a mass lecture component (n = 400 students per lecture) and smaller laboratory sections (n = 30). The primary measures of student performance in this course are objective testing and written assignments. Given

the design of the course and the instructional strategies relied upon (lectures, objective testing, and writing assignments) it is not surprising that HCA students obtained higher final course grades than LCA or MCA students. Again, these methods are identified by HCA students as their preferred instructional strategies (Bourhis et al., 1989; McCroskey & Andersen, 1976). Previous studies have demonstrated that student performance, at all educational levels and across different content areas is enhanced when students are taught using their preferred instructional strategies (Farr, 1971; Douglas, 1979; Cafferty, 1980). HCA students obtained higher final course grades because the course they had chosen relied upon instructional strategies that facilitated their learning. Conversely, these strategies are identified by LCA students as least effective in helping them to learn and may explain why their final course grades were lower (Bourhis et al., 1989).

As the results in Table 3 indicate, the best predictor of success in a basic course in interpersonal communication is a student's cumulative GPA prior to enrollment in the course (r = .88, p = .001). CA (r = .11, p = .001), ACT score (r = .33, p = .001), and class rank (r = -.33, p = .001) were less predictive of success. The results here suggest that cumulative GPA is the most reliable data for predicting success in a basic course in interpersonal communication.

IMPLICATIONS

This study suggests that the relationship between CA and AA is dependent upon the nature of the instructional environment studied and how academic achievement is operationalized. The relationship between CA and academic achievement is statistically significant and negative when ACT scores are used to operationalize AA. When AA is operationalized using cumulative GPA, HCA students out-perform their LCA and MCA counterparts. This is particularly true in a communication-restricted system involving instruction primarily employing the mass-lecture, lecture, objective testing, and written methods. These results also suggest that HCA students can compete effectively in communication-restricted systems, and in most cases better, than those students who do not experience communication apprehension. Concern for the well being of the HCA student in a communication-restricted basic course in interpersonal communication appears unfounded. What has been characterized as a learning disability may in fact be a learning asset for the HCA student in such large, introductory level courses.

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Table 1. Means and Standard Deviations for Measures of Achievement N=1077

	LOW CA		MODERATE CA		HIGH CA	
	MEAN	SD	MEAN	SD	MEAN	SD
Composite ACT	20.85	(3.15)	19.44	(3.82)	19.32	(4.66)
English	20.26	(3.83)	19.46	(3.66)	20.04	(3.88)
Natural Science	24.14	(4.35)	21.53	(4.75)	21.66	(4.95)
Math	17.86	(5.74)	17.96	(7.71)	17.01	(6.71)
Social Science	20.90	(4.63)	18.65	(5.54)	18.06	(6.15)
GPA	2.62	(.62)	2.70	(.71)	2.83	(.77)
Rank	112.46	(108.93)	95.18	(98.83)	74.81	(91.69)
Course Grade	2.17	(.93)	2.33	(1.03)	2.55	(1.30)

Table 2. Analysis of Variance for Measures of Achievement N=1077

TEST	SOURCE	SS	dF	MS	F
Composite ACT	Total	16132.59	1058	---	---
	Between Groups	253.17	2	126.58	8.42***
	Within Groups	15879.42	1056	15.03	
English	Total	14667.20	1058	---	---
	Between Groups	103.39	2	51.70	3.75*
	Within Groups	14563.81	1056	13.79	
Nat Science	Total	24419.79	1058	---	---
	Between Groups	824.17	2	412.08	18.44***
	Within Groups	23595.62	1056	22.34	
Math	Total	56939.75	1058	---	---
	Between Groups	117.03	2	58.51	1.09
	Within Groups	56822.72	1056	53.81	
Soc Science	Total	32957.69	1058	---	---
	Between Groups	725.23	2	362.61	11.88***
	Within Groups	32232.46	1056	30.52	
GPA	Total	543.85	1058	---	---
	Between Groups	3.55	2	1.78	3.53*
	Within Groups	540.30	1056	.50	
Rank	Total	10459695.91	1054	---	---
	Between	106708.01	2	53354.01	5.42***
	Within	10352987.90	1052	9841.24	
Course Grade	Total	1220.65	1074	---	---
	Between Groups	11.30	2	5.65	5.01**
	Within Groups	1209.35	1076	1.13	

* p<.05
** p<.01
***p<.001

Table 3. Correlations Among PRCA and Measures of Achievement N=1077

	CA	HSP	ACT	ENG	MAT	SS	NS	GPA	GRADE
CA	---	-.12***	-.07*	-.01	.03	-.14***	-.10**	.09**	.11***
HSP	---	---	-.37***	-.31***	-.29***	-.29***	-.22***	-.36***	-.33***
ACT	---	---	---	.74***	.69***	.78**	.78***	.38***	.33***
ENG	---	---	---	---	.42***	.51***	.42***	.40***	.35***
MAT	---	---	---	---	---	.31***	.39***	.31***	.28***
SS	---	---	---	---	---	---	.56***	.25***	.20***
NS	---	---	---	---	---	---	---	.25***	.20***
GPA	---	---	---	---	---	---	---	---	.88***

*p <.05
**p <.01
***p <.001

CA = PRCA
HSP = High School Ranking
COMR = SAT Composite Raw Score
ENGR = SAT English Raw Score
MATR = SAT Math Raw Score
SSR = SAT Social Science Raw Score
NSR = SAT Natural Science Raw Score
GPA = High School Grade Point Average
GRADE = Course Grade